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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,872	02/10/2004	Bao Ha	Serie 5545	3882

7590 08/22/2005

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EXAMINER	
MCNELIS, KATHLEEN A	

ART UNIT	PAPER NUMBER
1742	

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/776,872	HA ET AL.	
	Examiner	Art Unit	
	Kathleen A. McNelis	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *6/13/2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

CLAIMS STATUS

Claims 1-12 were canceled. Claims 13-17 remain for examination, wherein claims 13-17 are amended.

EXAMINER'S COMMENTS

The specification as scanned on 02/10/2004 is missing pages 7 and 10. A copy of page 10 was provided and scanned on 07/15/2004. Please provide a copy of page 7 to make the specification complete.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

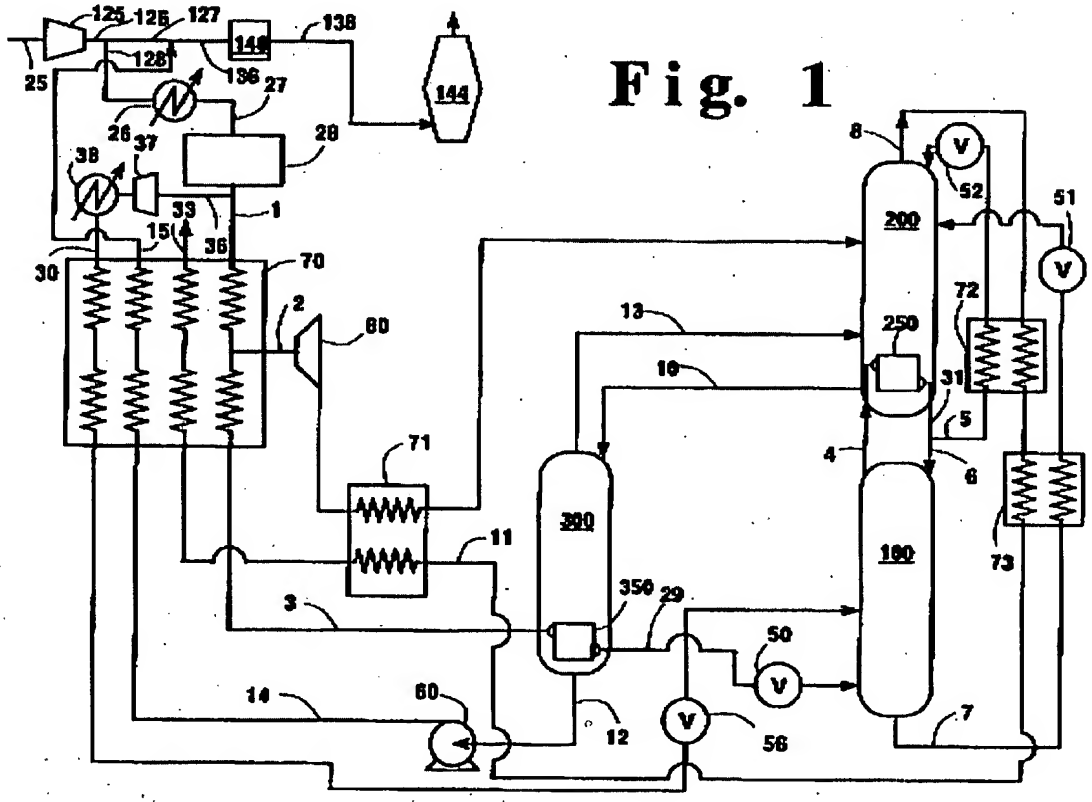
This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drnevich et al. (US 5,582,036) in view of Rathbone (5,268,016).

Drnevich et al. discloses a cryogenic air separation-blast furnace system as shown in Fig 1 below.

Fig. 1



In Drnevich et al., the blast furnace air stream (25) is compressed in a blast air blower (125). A minor portion of the blast furnace feed air stream (126) is taken off (stream 128) as feed to the air separation unit. A primary portion of the blast furnace feed air stream (stream 127) is fed to the blast furnace (144), after being first mixed with the oxygen rich stream (15) returning from the air separation unit. These two streams are combined to form an oxygen-enriched blast air stream (136), which is fed to the blast furnace (col. 4 line 21 to col. 6 line 4).

Drnevich et al. discloses the removal of nitrogen from the upper portion of the separation column (200) as stream 8, warming the nitrogen through heat exchangers 72, 73, 71 and 70, but does not disclose expansion of the nitrogen to recover energy (col. 4 lines 11-20). In a method for air separation combined with a blast furnace, Rathbone (5,268,019) discloses that it is known to be advantageous to recover work from nitrogen produced in cryogenic air separation plants (col. 1, lines 9-28). Rathbone discloses a method for removing a minor portion of the compressed air stream for separation, separating this minor stream into oxygen and nitrogen rich streams, and expanding the nitrogen stream to recover external work (col. 8, line 44-col. 9, line 4). Rathbone discloses several methods for heating and expanding the nitrogen:

- The nitrogen may be heated by non-contact heat exchange with a fluid, and expanded without mixing with another fluid (col. 9 lines 24-30), as in instant claim 13.
- The heat exchange fluid used to heat the nitrogen may be combustion gases (col. 9, lines 24-34), as in instant claim 14.

- The nitrogen may be mixed with combustion gases and expanded therewith (col. 9, lines 11-23), as in instant claim 15.
- A portion of the nitrogen stream may be heated by non-contact exchange with the exhaust gases from a turbine prior to being expanded. The off-gases used for heat exchange with the nitrogen being generated by combustion of the off gas from a blast furnace in a combustion chamber (col. 5, lines 26-52), as in instant claim 16.

It would have been obvious to one of ordinary skill in the art at the time the invention was made, to recover work by expanding the nitrogen rich stream generated in Drnevich et al., by any of the means disclosed in Rathbone for heating and expanding the nitrogen to recover work, since Rathbone teaches that it is known to be advantageous to recover work from nitrogen produced in a cryogenic air separation plant (col 1., lines 11-27).

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drnevich et al. (US 5,582,036) in view of Rathbone (5,268,016), and in further view of Drnevich (5,802,875).

Drenevich et al. (US 5,582,036) in view of Rathbone discloses a cryogenic air separation unit, integrated with a blast furnace and various methods for utilizing the nitrogen stream produced to recover work by expansion in a gas turbine system. Drenevich et al (US 5,582,036) in view of Rathbone does not specifically provide a compressor for adding additional air to the feed of the separation unit. Drenevich (5,802,875) discloses a method and apparatus for control of an integrated cryogenic air

separation unit and gas turbine system, as shown in Fig. 1 below. The feed air stream 15 is compressed (14) then fed to an air separation unit (12). Supplemental air is provided by a compressor (34) (col. 2 lines 46-64). The supplemental air source is provided as part of a control system so that the system can operate at peak performance over a wide range of ambient air temperatures (col. 1, lines 42-52).

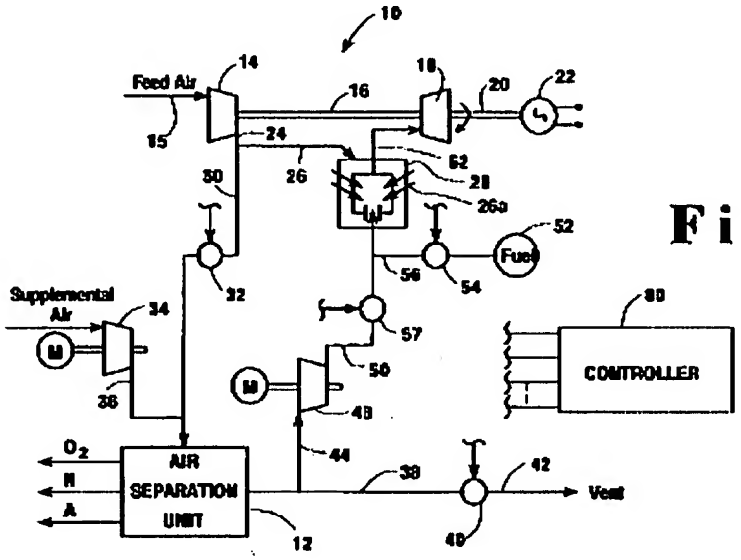


Fig. 1

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a supplemental air compressor in the invention of Drenevich et al (US 5,582,036) in view of Rathbone, so that the system could operate at peak performance over a wide range of ambient temperatures as disclosed by Drenevich (5,802,875; col. 1, lines 42-52).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 13 to 17 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-13 of Brugerolle et al., U.S. Patent No. 6,568,207.

Although the conflicting claims are not identical, they are not patentably distinct from one another for the same reasons stated in the 3/11/2005 office action (page 7, third paragraph). The rejection stated in the 3/11/2005 office action is therefore maintained.

Claims 13 to 17 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of Ha et al. (US 6,692,549).

Although the conflicting claims are not identical, they are not patentably distinct from one another for the same reasons stated in the 3/11/2005 office action (page 7, fourth paragraph). The rejection stated in the 3/11/2005 office action is therefore maintained.

Response to Arguments

Applicant's arguments with respect to previous rejections based on 103(a) citations of prior art with regard to claims 13-17 have been considered, but are moot in view of the new ground(s) of rejection.

The addition of the blast furnace renders claim 13 and dependent claims patentably distinct over claims 1-16 of Ha et al (US 6,508,053).

The addition of the blast furnace does not distinguish claim 13 or dependent claims from Brugerolle et al. (US 6,568,207). Brugerolle et al. specifically teaches the use of a blast furnace in the abstract (mentioned twice), Figure 1 (labeled HF), col. 1 lines 11, 25, and 51-53, col. 2 lines 16-17, and col. 3 lines 16-17 (where the metal treatment unit is defined as a blast furnace), therefore the rejection is maintained.

The terminal disclaimer required to overcome the double patenting rejection based on Ha et al. (US 6,692,549) has not yet been received, therefore the rejection is maintained.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kathleen A. McNelis whose telephone number is 571-272-3554. The examiner can normally be reached on M-F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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